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tricity. We found that positively electrified air lost its positive electricity, and in some cases acquired negative electricity, under the influence of Röntgen rays; and we were thus led to investigate the effect of Röntgen rays on air unelectrified to begin with.

Note on diagram.—For the sake of simplicity, the screening of the electrometer is not shown in the diagram. In carrying out the above experiments, however, we have found it absolutely necessary not only to surround the electrometer with wire gauze in the usual manner, but we have had also to place a sheet of lead below it, and to screen also the side next the Röntgen lamp by a lead screen. In some cases it was even necessary to cover up the whole with paper to prevent the electrified air of the room from disturbing the instrument.

KELVIN,

J. C. BEATTIE,

M. SMOLUCHOWSKI DE SMOLAN.

PHYSICAL LABORATORY,

UNIVERSITY OF GLASGOW,

December 19, 1896.

CURRENT NOTES ON ANTHROPOLOGY.

ORIGIN OF ROCK PAINTINGS.

A VALUABLE article is published in the Bulletin of the American Museum, Vol. VIII., by James Teit, on a rock painting of the Thompson River Indians, British Columbia.

It appears that young girls, on reaching maturity, retire for a season of solitude, meditation and purification. At its close they paint on some rock, with red ochre, their psychical experiences and the rites they have performed. An example is given with its interpretation.

This origin of pictographs is not mentioned, I think, in Col. Garrick Mallery's extensive work. The figures are curious and suggestive. They appear to be conventional and can be read by any woman of

the tribe. This shows that they are taught to the young girls, and we thus find a recognized graphic system prevailing in this rude tribe.

THE MEANING OF MOURNING.

VARIOUS ethnologists have claimed that the laments, the mutilations and howls of the survivors around the corpse in primitive nations are chiefly for their own benefit, to keep away the ghost, as that is usually considered malevolent.

The subject is discussed by K. T. Preuss, in the *Globus*, November, 1896, in an article 'Die Totenklage im alten Amerika.' Some instances, he believes, justify the above assertion, but the majority do not. The wailing and weeping, often continued for months, he regards as generally indications of personal sorrow at the loss sustained.

This natural and satisfactory explanation is supported by the most intelligent officers of our regular army who have seen intimately the home life of our western Indians. For instance, the late Captain W. P. Clark, 'the white chief with the talking hand,' expresses himself positively to this effect, in his *Indian Sign Language*, p. 263.

PRIMITIVE TRAVEL AND TRANSPORTATION.

AN essay with this title, by Prof. O. T. Mason, occupies more than 350 pages of the last Report of the United States National Museum. In completeness of presentation and wealth of material it far surpasses any other study of the subject, and leaves little to be desired until we have materially extended our collections of early objects. There are 260 figures inserted in the text, illustrating all sorts of native conveyances—cradles, baskets, shoes, sandals, staffs, carrying gear, tree-climbing devices, snow goggles, etc.—and the mode in which they were used. Roads, bridges, journeys, camping grounds and other matters pertaining to primitive travel claim a part of the author's attention.

Prof. Mason intends to follow up this excellent piece of work with a primitive trade-route map of the United States and Canada, including trails and portages. He will be gratified to receive information on these points from travelers and explorers, or references to where such may be found. His address is the National Museum, Washington, D. C.

D. G. BRINTON.

UNIVERSITY OF PENNSYLVANIA.

SCIENTIFIC NOTES AND NEWS.

MODERN ARMY RIFLES.

THE portions of the Governor's message of January, 1895, to the Legislature of the State of New York referring to the re-arming of the State troops; the Law passed May 10th, in compliance with its suggestions, and the rules of procedure of the New York State Board appointed to select improved arms for the militia of the State; the report of that Board, September, 1895, and the Governor's message of October 22d, relating to the report, are just published in pamphlet form by the Savage Arms Co., of Utica, N. Y., the makers of the gun selected by the Board. This makes a convenient compendium for those interested in the subject. A table is also included showing the dimensions and character of the rifles adopted for military purposes by the governments of the world; substantially all of which have adopted a small calibre, usually about 0.30 inches, and smokeless powder. The United States has accepted this specification for its army rifle, but the navy gun is of but 0.236 inches bore. Curiously enough, all of the States of the Union have armed their troops with the U. S. Springfield gun, except New York, which has the most antiquated of rifles, of large calibre; and all the militia of all the States are using black powder.

The N. Y. State Board reported in favor of a 'lever action,' in preference to the 'bolt action' adopted by all the nations of Europe, as being in all respects superior to the latter and as having the further advantage of being a generally used American invention, and hence familiar, already, to all habitual users of the rifle

in the United States. A stronger metal for barrels than heretofore employed is specified, and the study of nickel steel as a material for such guns is advised. That alloy is already adopted by the United States Navy, both for small arms and for ordnance and armor. The Board suggests the attempt to secure at least an elastic limit of 75,000 pounds per square inch, tenacity of 110,000 or 120,000 pounds, and at the same time a ductility of at least 20 per cent. in eight inches. It is thought possible to secure these figures, which would insure an extremely strong, yet light and very safe, barrel. The United States Army regulation bore, chamber and rifling are advised, in order to secure uniformity of ammunition. The Board seems doubtful whether the higher velocity, approximating 2,300 feet per second, greater range, attaining something like two miles, and higher penetrative power of the small bores used by our own navy, and by several foreign nations, is not, on the whole, compensated by more serious disadvantages in loss of 'stopping power' and difficulties of manufacture and manipulation. The gun selected has a muzzle velocity of 1,950 feet and a range of about a mile and a-half.

The use of the 'clip' for holding cartridges is not found desirable, with a satisfactory form of magazine and mechanism. The use of the gun as a single loader, with a reserve in the magazine, is thought likely to prove, in action, the usually desirable arrangement.

Twelve guns were entered for examination and report. Their behavior under test, according to the statement of the Board, "is believed to have been the most wonderful performance of new magazine rifles of different patterns of which a record is known. It was a splendid exhibition of American skill and genius in the invention of effective military magazine arms."

The report is unanimous and is signed by Messrs. Albert D. Shaw, of Watertown; E. W. Bliss, of Brooklyn, and R. H. Thurston, of Ithaca, N. Y.

GENERAL.

THE cable dispatch (see page 103 in the last number of this JOURNAL) regarding the disposition of the fortune of the late Alfred Nobel is confirmed by later advices. The annual income-